CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER NO. R5-2008-____

FOR
HJ BAKER & BRO. INC AND THE PORT OF STOCKTON
MOLTEN SULFUR PROCESSING PLANT
SAN JOAQUIN COUNTY

This Order is issued to HJ Baker & Bro. Inc. (HJ Baker) and the Port of Stockton (Port), hereafter together referred to as "Discharger", based on provisions of California Water Code Section 13304, which authorizes the Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Water Board) to issue a Cleanup and Abatement Order, and California Water Code Section 13267, which authorizes the Regional Water Board to require the submittal of technical and monitoring reports.

The Executive Officer of the Regional Board finds, with respect to the Discharger's acts, or failure to act, the following:

1. HJ Baker owns and operates a processing plant that converts molten sulfur into sulfur pellets (i.e., "prill"). The Port of Stockton (Port) owns the land and operates a 1,100-foot prill conveyor and tunnel system that extends from a vault beneath the sulfur stockpile area to a wharf. HJ Baker owns the plant, leases the land from the Port, and operates the plant.

2. The sulfur plant is on 5.6-acres at 65 Stork Road in Stockton, California. This property is described by Assessor's Parcel Number 145-030-01 in Section 9, T1N, R6E, MDB&M. The site is located within the Port of Stockton's Eastside Complex, east of the San Joaquin River, and south of Wharf 10-11, as shown on Attachment A, which is incorporated herein and made a part of this Order by reference.

3. Beginning in 1991, HJ Baker processed prill off-site and trucked the prill via bottom dump to the below grade vault at the Stork Road facility. From 1991 to November 2007, the Port used the conveyor and tunnel system to transport the sulfur prill from the below grade vault to the docks.

4. HJ Baker began storing sulfur stockpiles at the site in 1997, and in August 2004 began on-site processing of molten sulfur.

5. Currently, the daily quantity of sulfur prill stored on the site ranges from 1,000 metric tons to 40,000 metric tons.

6. The facility receives molten sulfur in truck shipments and then coverts the molten sulfur into the prill. An overhead conveyor moves the prill to the stockpile area, where the pellets are dropped from above onto stockpiles. The prill is stored in outdoor stockpiles until conveyed to ships docked at the wharf. Shipment occurs approximately six to eight times per year.

7. Prill transport from the stockpiles to the docks is performed via the Port's 1,100-foot conveyor system that starts at an access port located beneath the stockpile area (i.e., the below grade vault). From the vault, the conveyor consists of a 400-foot below grade (tunnel) section and a 700-foot above ground section that terminates at the wharf. At times, shallow groundwater is known to percolate into the tunnel section. In November 2007, the tunnel conveyor system was shut down for an indefinite period. The above ground portion is constructed on an asphalt and concrete pad and is contained in a structure with a steel wall and roof.

8. Sulfur prill is stored outside in uncovered stockpiles on asphalt.

9. The facility has not previously been regulated by Waste Discharge Requirements (WDRs).

10. The Discharger is enrolled under the state-wide general permit for industrial storm water (WDID No. 5S39I000860). According to the Discharger's 2 April 2008 letter, non-contact storm water runoff flows south to two storm drains that connect and then flow to a drainage ditch that is located west of the former blending and transfer building. From this location, surface water runoff leads to Washington Street and the Port of Stockton's municipal storm water drainage system. Rainfall runoff from the eastern roof of the blending and transfer building flows to downspouts that discharge to a drainage ditch along the eastern edge of building. This ditch also receives and conveys runoff from Stork Road, not associated with the facility.

IMPACTS TO GROUNDWATER AND SURFACE WATER

11. At the October 2004 Regional Water Board meeting, the Regional Water Board requested that staff inspect the Discharger's facility and determine if the facility is degrading waters of the state or if the facility poses a threat to water quality.

12. On 30 March 2005, staff inspected the facility, obtained field samples, and recorded observations. Staff noted ponded water in contact with sulfur piles within the stockpile area; sulfur drift on bare earth in contact with ponded rainwater; groundwater that had been pumped from the tunnel that conveys sulfur to the export ships; and that storm ditches and sumps had evidence of impact from sulfur. The field sample results had following concentrations:

Location/Source	**Electrical Conductivity (umhos/cm)**	**pH (SU)**
Groundwater pumped from the sulfur conveyor tunnel	3,200	2.6
Storm water ponding on bare earth between Discharger and a neighboring facility	18,000	2.1
Storm water sump that discharges into the storm water system	2,300	5.6

13. Based on the field test results, the low pH and high electrical conductivity are significantly greater than what would be expected from non-impacted stormwater. The results indicate sulfur-impacted water, and that the operations are impacting surface water and are a threat to groundwater.

14. When in contact with rainwater, the prill stockpiles form an acidic sulfate-bearing leachate that is stored in ponded areas on top of the asphalt surface of the prill stockpile area. The Discharger reuses the ponded leachate in the prilling process. However, the leakage rate of leachate through the asphalt surface and into the vadose zone has not been determined.

15. A comparison between the groundwater monitoring data obtained in 1991 versus the data obtained in 2003 indicates that the shallow groundwater has been impacted. In 1991, four groundwater wells were installed (MW-1, MW-2, MW-3, and MW-4): sulfate concentrations in 1991 ranged from 87 mg/L to 440 mg/L, and in 2003 ranged from 597 mg/L to 1780 mg/L. Samples collected in 2003 also had elevated concentration of electrical conductivity that ranged from 1,743 to 3,080 umhos/cm, and total dissolved solids (TDS) ranging from 1,310 to 2,512 mg/L. Based upon the inspection conducted in March 2005, the sulfur piles are not adequately contained to protect the waters of the state. The discharge of sulfur at this facility has caused groundwater concentrations of sulfate to increase. The table below shows the changes over time to the sulfate concentration in shallow groundwater wells with respect to wells that were installed prior to the start of operations in 1991. Wells upgradient to the Discharger were not installed in 1991.

Historical Sulfate Concentrations (mg/L)

Date	MW-1 (Downgradient)	MW-2 (Downgradient)	MW-3 (Downgradient)	MW-4 (Downgradient)
1991		87	400	440
2003	597	1,780	1,412	1,780
2005	480	860	1,200	1,200
August 2007	450	NA	1,100	NA

Legend: mg/L — micrograms per liter; NA/Not Reported - not analyzed/not reported

16. In a 12 April 2005 letter, staff informed the Discharger that the inspection observations, inspection data, and the case file review supports the conclusion that the sulfur piles are not adequately contained to protect waters of the state and that the facility appears to have impacted groundwater. Further, staff required submittal of a groundwater investigation work plan by 1 June 2005. Following the completion of the investigation, a report and a feasibility study were due thereafter.

17. The information was not submitted, and therefore on 2 June 2005 the Regional Water Board required that the Discharger submit technical reports pursuant to California Water Code Section 13267. Further, the Discharger was required to submit a short-term plan to manage sulfur in a manner that would prevent release outside the containment area or from the conveyance structures.

18. On 24 February 2006, the Discharger submitted their *Groundwater Investigation and Feasibility Study, Bulk Terminals Site* and recommended the installation and monitoring of additional groundwater wells. Subsequently, the Discharger installed eight groundwater monitoring wells into a lower sandy layer. The Discharger has monitored these new wells, two of the existing wells, and has submitted three quarterly groundwater-monitoring reports (first, second, and third quarters of 2007). Attachment A shows the locations of all wells. The Discharger's 2006 investigation concluded that relatively elevated concentrations of total sulfur and sulfate are present in groundwater in the immediate vicinity of the Bulk terminals site and in the general area of historical and current sulfur prill storage and operations.

19. On 1 August 2006, the Discharger submitted their sulfur management plan.

20. In a letter submitted 2 April 2008, the Discharger agreed to install a 500,000 gallon above ground storage tank, install pavement on remaining bare areas where sulfur could accumulate, replace damaged wind screens, fill in the below grade vault, and add the tunnel to the monitoring and reporting requirements. Prior to operating the tunnel, the Discharger also stated that the tunnel water will be analyzed quarterly until it can be demonstrated that the tunnel does not present a risk to groundwater, or until the Port can determine if infrastructure improvements or closure is necessary.

REGULATORY CONSIDERATIONS

21. The *Water Quality Control Plan Central Valley Region—Sacramento River and San Joaquin River Basins, Fourth Edition* (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.

22. The facility is in the San Joaquin River in the Sacramento-San Joaquin River Delta (Hydrologic Area 544) of the Basin Plan. The designated beneficial uses of the Sacramento-San Joaquin River Delta, as specified in the Basin Plan, are municipal and domestic supply, agricultural supply, industrial power supply, contact and non-contact water recreation, warm and cold freshwater habitat, migration of aquatic species, aquatic habitats for reproduction and early development, wildlife habitat, and groundwater recharge.

23. The beneficial uses of underlying groundwater, as stated in the Basin Plan, are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.

24. Section 13304(a) of the California Water Code provides that: "*Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a Regional Water Board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the Regional Water Board, clean up the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts. A cleanup and abatement order issued by the state board or a Regional Water Board may require the provision of, or payment for, uninterrupted replacement water service, which may include wellhead treatment, to each affected public water supplier or private well owner. Upon failure of any person to comply with the cleanup or abatement order, the Attorney General, at the request of the board, shall petition the superior court for that county for the issuance of an injunction requiring the person to comply with the order. In the suit, the court shall have jurisdiction to grant a prohibitory or mandatory injunction, either preliminary or permanent, as the facts may warrant*."

25. Section 13267(b)(1) of the California Water Code provides that: "*In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports*."

26. The technical reports required by this Order are necessary to ensure compliance with this Cleanup and Abatement Order, and to ensure the protection of the waters of the state. The Discharger owns and operates the facility that discharges waste subject to this Order.

27. The issuance of this Order is an enforcement action taken by a regulatory agency and is exempt from the provisions of the California Environmental Quality Act, pursuant to California Code of Regulations, title 14, section 15321(a)(2).

28. Any person affected by this action of the Regional Water Board may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with California Code of Regulations, Title 23, section 2050 through 2068. The petition must be received by the State Water Board within 30 days of the date of the issuance of this Order.

Copies of the law and regulations applicable to filing petitions are available at http://www.waterboards.ca.gov/wqpetitions/index.html and will be provided upon request.

IT IS HEREBY ORDERED that, pursuant to Sections 13304 and 13267 of the California Water Code, HJ Baker & Bro Inc. and the Port of Stockton shall cleanup and abate, forthwith, the molten sulfur processing facility.

"Forthwith" means as soon as is reasonably possible. Compliance with this requirement shall include, but not be limited to, completing the tasks listed below.

Any person signing a document submitted under this Order shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my knowledge and on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

1. By **31 August 2008**, the Discharger shall submit the following:
   a. A Sample Collection and Analysis Plan (SAP) describing the sampling, analysis, and methods to collect the samples as required under MRP No. R5-2008-____. The SAP shall include the requirements under MRP No. R5-2008-____ and Section 1 of Attachment B of this Order.
   b. Proposed locations of surface water and tunnel water monitoring points.
   c. A workplan for an expanded monitoring well system for the shallow groundwater zone to determine background concentrations and to monitor the horizontal extent of contamination. All requirements in Section 2 of Attachment B shall be included. The Discharger shall begin sampling these new wells **by the third quarter of 2008**.
   d. A scaled Comprehensive Site Map showing the proposed location of the new above ground storage tank, berms, K-rails, sumps, any locations where ponded water is presently stored, the below grade vault, any leachate drainage and collection/conveyance systems, the conveyor tunnel and above ground conveyor, and leachate swales, ditches, and piping. The surface area of the prill stockpile and sulfur-contact areas shall be included. A hard copy (11"x17") and electronic format (i.e., PDF) file shall be submitted.
   e. A 12-month water balance with the local monthly mean precipitation (based on a 100-year precipitation event), inflow, storage capacity, outflow, evaporation, and rainfall from a 100-year 24-hour event storm event. Inflow shall include drainage from the sulfur-contact surface areas, leachate, process water, make-up water, any liquids that enter the concrete vault, and any other liquid that enters the process.

The source and monthly usage of supply water shall be included in the water balance.

f. Documents certifying the current CEQA status for the Discharger's site.

g. An Operations and Maintenance Plan (O&M Plan) for any part of this facility that stores sulfur, stores or coveys leachate or liquids that have come in contact with sulfur, and for any structure that is designed to contain the sulfur, leachate, and prill. The O&M Plan shall contain a list of all sumps, ditches, swales, above ground storage tank (ASTs), and piping that contain or convey sulfur contact-water or leachate. The O&M Plan shall contain a copy of the comprehensive site map (described above). At a minimum, the O&M Plan shall contain a routine schedule, procedures, and logbooks or forms to document work, as follows:

i) The annual inspection and leak detection tests, repairs, and retests for the AST, tunnel, sumps, concrete vaults, and leachate conveyance systems.

ii) Logbook (or similar) to record the leak detection test results.

iii) Logbook (or similar) to schedule and perform repairs on any equipment that failed the leak detection test.

iv) Weekly observations for the available freeboard in the AST.

v) Measures to prevent prill from extending above the windscreens.

vi) Measures to prevent windblown prill off of the overhead prill conveyor (that dumps prill onto the stockpiles).

vii) Measure to prevent windblown prill from leaving the stockpile area.

viii) Measures to prevent the formation of ponded surface water (with a pH less than 6.5 SU or greater than 8.5 SU) outside the prill storage area.

ix) Measure taken to test, contain, and dispose of liquids pumped from the conveyor tunnel, including the hauler's name and the disposal site's name and location.

2. Beginning on **1 October 2008**, the Discharger shall conduct quarterly groundwater monitoring of the monitoring well system according to the attached Monitoring and Reporting Program No R5-2008-____.

3. By **31 January 2009**, the Discharger shall submit the following:

a. The Monitoring Well Installation Report with the information specified in Section 3 of Attachment B to this Order.

b. The first quarterly monitoring report as required under the MRP Order No. R5-2008-____. The sampling and analysis shall be based on a SAP that has received concurrence by the Regional Water Board staff. The Monitoring Report shall include the theoretical hydraulic conductivity of the upper most aquifer and the deeper sandy aquifer. Thereafter, the Discharger shall perform quarterly sampling events as required under the MRP Order No. R5-2008-____, Section A.

c. Certification that the below grade concrete vault has been sealed.

d. Results of tests and inspections performed on the tunnel.

e. Certification that the leachate sumps and leachate conveyance system have passed any leak detection tests.

f. Certification that the conveyance tunnel has not been used for transferring sulfur or prill to any wharves.

g. Verification that prill stockpiles do not exceed the upper extent of the windscreens and that windscreens have been installed around the entire perimeter of the prill storage area. Alternatively, the Discharger may submit a technical engineering report certifying that the existing windscreen extent (including locations without windscreens), the dropping of prill from the conveyor onto stockpiles, and the height, material, locations, and any gaps will prevent windblown sulfur and drift from leaving the prill storage area. The report shall provide the height of the sulfur piles and the height of the conveyor above which wind drift may occur. The Discharger must maintain the piles below that value. The report shall be signed and stamped by a California Registered Civil Engineer.

4. By **31 July 2009**, the Discharger shall certify that the following infrastructure improvements have been completed:
   a. Operation of the 500,000-gallon AST has commenced,
   b. Installation of pavement so that there are no uncovered areas where sulfur prill can accumulate,
   c. Installation of wind screens between the existing lower portion of the screen and the K-rails, and
   d. Installation of windscreens to prevent the transport of windblown prill during the dropping of prill onto the stockpiles from the conveyor.

5. Beginning **1 November 2008,** and by the first day of the second month following each calendar quarter (**i.e., by 1 February, 1 August, and 1 November of each year**), the Discharger shall submit a progress report describing the work completed to date regarding each of the reporting requirements described above.

In accordance with California Business and Professions Code Sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall contain the professional's signature and stamp of the seal.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement or may issue a complaint for administrative civil liability.

Failure to comply with this Order may result in the assessment of an Administrative Civil Liability up to $10,000 per day of violation pursuant to the California Water Code sections 13268, 13350 and/or 13385. The Regional Water Board reserves its right to take any enforcement actions authorized by law.

This Order is effective upon the date of signature.

_____

PAMELA C. CREEDON, Executive Officer

_____

(Date)

Attachments:
Attachment A, Site Map
Attachment B, Monitoring Well Workplans, Sample Collection and Analysis Plans, and Reports
Monitoring and Reporting Program

mlb: 13-Jun-08